The My Class Activities Instrument as Used in Saturday Enrichment Program Evaluation

Nielsen Pereira

Purdue University

Scott J. Peters

University of Wisconsin – Whitewater

Marcia Gentry

Purdue University

Abstract

The purpose of this study was to evaluate *My Class Activities* (*MCA*), an instrument that can be used to evaluate gifted programs. A sample of *MCA* scores from 826 students in grades 3-8 from a Saturday enrichment program was used. We evaluated four different models using confirmatory factor analyses. Results indicated a revised version of *MCA*, including interest, challenge, choice, and enjoyment, with two items removed, could be used for Saturday enrichment program evaluation. The revised *MCA* is an option for enrichment program evaluation that provides measures of four motivational dimensions that are essential aspects of programs for high-ability students.

Introduction

Instruments designed to evaluate the effects of programs for gifted and talented students are scarce, but necessary. In 2006, VanTassel-Baska called for program evaluation studies "that provide evidence of program effectiveness and defensible results in serving the gifted as a population in

school" (p. 339). In the same report card on the state of research in gifted education, Robinson (2006) noted the need for more information on assessment tools used in gifted education. Gallagher (2006) also stressed conducting responsible evaluation as a necessity in both general and gifted education. Gentry and Gable (2001a) developed *My Class Activities* (*MCA*), an instrument designed to measure students' perceptions of interest, challenge, choice, and enjoyment regarding their classroom. *MCA* has been used to evaluate enrichment programs, but has not been specifically normed for use with such a population, which could differ substantially from students in a school setting. Using *MCA* in such a fashion could yield inaccurate results. Thus we evaluated *MCA,* using a sample of students from a Saturday enrichment program to determine whether *MCA* is a viable tool for use in this setting and to determine the best model for the instrument when using it on this population of students.

Literature Review

My Class Activities

My Class Activities (MCA) is an instrument designed to assess the frequency with which students perceive four motivational components (Interest, Challenge, Choice, and Enjoyment) in their classes (Gentry & Gable, 2001a). Students respond to each of the 31 items using a five-point frequency response scale, and the final scores are obtained by averaging students' responses to items on each scale. Gentry, Maxfield, & Gable (1998) assessed the content and construct validity of *MCA*. Content judges provided evidence of validity for the four factors. Exploratory factor analysis supported the hypothesized four-factor model.

MCA was normed using a national sample of 3,744 elementary and middle school students, both comprised of 51% males (Gentry, Rizza, & Gable, 2001; Gentry & Gable, 2001b). Alpha internal consistency estimates ranged from .68 to .92 (Gentry, et al., 2001; Gentry & Gable, 2001b). Confirmatory factor analyses (CFA) were used to further investigate the validity of the scores for the normative sample, yielding goodness of fit (GFI) statistics for elementary and middle school students of .95 and .88, respectively. RMSEA values ranged from.04 to .09 (Gentry & Gable, 2001a).

The four dimensions of MCA have long been integral components of gifted programs (Gentry & Gable, 2001a) and are referred to in the NAGC Pre-K-Grade 12 Gifted Program Standards (NAGC, 2000) in several different sections. For example, student interest should be considered with regard to identification, and challenge is referenced as a major consideration for curriculum design. The same can be said for differentiated instruction which emphasizes both challenging curriculum and considerations for student choice (Tomlinson & Edison, 2003). The four dimensions have also been cited as important in student achievement and motivation. Student interest is an especially important aspect of Saturday enrichment programs, since students choose classes in areas that relate to their interests (Robinson, Shore, & Enersen, 2007). Considering student choice in instructional planning and programming is key to optimal learning experiences (Alexander & Schnick, 2008). Gentry, Gable, and Springer (2000) suggested that giving students choices is a simple, although powerful modification that can be made to improve the educational environment of a classroom. Enjoyment of classroom activities has been suggested as vital for successful learning (Csikszentmihalyi, 1990; Renzulli, 1994).

Gifted and talented program evaluation

According to VanTassel-Baska, "the fundamental role of evaluation is to provide information that can be used to improve and advance the state of the art of gifted programs" (VanTassel-Baska, 2004, p. 23). Callahan's (2001) strategies for gifted education in the new millennium included committing to better evaluation of gifted programs. Because no single measure will give a complete picture, Feng and VanTassel-Baska (2004) recommend multiple perspectives or triangulation of instruments and perspectives in order to best evaluate program outcomes. The *MCA* instrument, with its focus on students' perceptions of interest, challenge, choice, and enjoyment, can serve as one of these measures as information related to these constructs is not often captured in other measures.

Saturday Enrichment

Saturday enrichment programs offer several potential benefits to gifted students. Children in out-of-school enrichment programs are exposed to advanced content in diverse subject areas 4while being surrounded by like-ability peers (Davis & Rimm, 2004; Olszewski-Kubilius, 2003). Furthermore, with the implementation of No Child Left Behind, many gifted students do not receive appropriate services to meet their learning needs in the regular classroom (Reis, 2007), making Saturday enrichment programs increasingly important. Because *MCA* has been used to evaluate Saturday enrichment programs since 2004, the purpose of this study was to analyze the factor structure of *MCA* using a sample of such students do determine its value as an evaluation instrument. The following research questions guided our inquiry:

1. How do *MCA* data from a Saturday student enrichment program fit the original factor model from Gentry and Gable (2001a)?

2. How do alternative models affect overall model fit?

3. What changes (if any) should be made to MCA to enable the instrument to be used with enrichment programs?

4. Can the *MCA*, in its current or a revised form, be used as one component to evaluate enrichment programs?

Methods

*Participant*s

One thousand sixty-five students in grades 3-8 who had participated in a Saturday enrichment program designed for high-ability students comprised the sample for this study. Data were collected over seven program sessions in a four-year period. Participants represented a wide range of communities, including rural, suburban, and urban locations and were 51% female. Listwise deletion was used to eliminate any case in which all 31 *MCA* items were not completed because missing cases were distributed relatively equally across the different sessions. After listwise deletion, 826 cases were kept and used for all factor analyses. Data collection took place at the end of each Saturday

enrichment program. Course assistants administered *MCA* on the final day following an identical set of directions to ensure consistency in administration.

Data Analysis

We used *MPlus* software (Muthén & Muthén, 2007) to perform CFA. Traditional maximum likelihood (ML) estimation was used in the factor analyses based on the Finney and DiStefano (2006) recommendation that ML estimation can be used with ordinal data that have skewness less than two and kurtosis less than seven. Both were evaluated for the current sample before the analyses were conducted.

First we tested the original *MCA* model from Gentry and Gable (2001a), then another model that included a second-order factor above interest and enjoyment, and finally, a model containing three first-order factors (interest and enjoyment combined). We also performed analyses to evaluate a model excluding some of the *MCA* items. In order to evaluate each model, we examined the chi-square values, GFI, RMSEA, and Comparative Fit Index (CFI). GFI and CFI should be as close to 1.0 as possible and RMSEA values should be less than 0.05 for good fit and never greater than .10 (Hu & Bentler, 1999). We also examined alpha reliability estimates. Values above .80 are considered good for instruments in the affective domain (Gable & Wolf, 1993).

<center>Results</center>

Model Fit

The original *MCA* model (Gable & Gentry, 2001) yielded fit indices similar to those found in previous studies (Gentry et al., 2001; Gentry & Gable, 2001b). Table 1 presents the fit indices for the different *MCA* models that were evaluated.

Table 1. *Comparison of Fit Indices for the Different MCA Models*

Model	x^2 (df)	GFI	RMSEA	RMSEA 90% CI	CFI
MCA Original Model	1726.70 (428)	.86	0.06	(0.0577, 0.0636)	0.89
Second-order Model	2145.51 (429)	0.85	0.07	(0.0665, 0.0724)	0.89
Three-factor Model	2089.63 (431)	0.83	0.07	(0.0654, 0.0712)	0.86
Revised *MCA*	1269.09 (379)	0.91	0.05	(0.0472, 0.0541)	0.92

The fit statistics for the original *MCA* model presented in Table 1 indicate adequate fit, but all fall just short of recommended values (Hu & Bentler, 1999). Comparing these values to the fit statistics obtained with the normative sample (GFI=.88 to .95, RMSEA=.04 to .09), we noted that the model did not fit the Saturday enrichment sample, which had a GFI value of .86 and RMSEA value of .06., as well.

Table 1 also presents the fit statistics for a model which included a second-order factor connecting interest and enjoyment. This model did not improve the fit. Instead of the expected decrease in the chi-square value when the second-order term was added, chi-square increased from 1,726 for the original *MCA* model to 2,145 for the model including the higher-order term. The other fit indices also showed poorer fit for this model, when compared to the original *MCA* model, with lower GFI (.85) and CFI (.89) values and a higher RMSEA value (.07). Finally, we tested a model with three first-order factors. That is, we made interest and enjoyment a single first-order factor. Results for that model are shown in Table 1. The three-factor model also did not show significant improvement in fit with a higher chi-square value (2,089) than the chi-square value for the original

MCA model (1,726). GFI and CFI values also decreased for the three-factor model (GFI=.83,

CFI=.86) as compared to the original *MCA* model and the RMSEA value increased (RMSEA=.07).

Possible Scale Revision

Since some of the items had low factor loadings in past studies of *MCA* and the analyses of the

three models in this study suggested some of the items could be problematic, we decided to evaluate

the fit of the model when analyzed without some of the poorest functioning items. Items 16 and 17

showed the lowest factor loadings and may not contribute to describing the factor of challenge when

compared with other items. These items also had large modification indices of 171.69 and 65.27

respectively. These were seen as especially high since typical modification indices for the sample

ranged from 10 to 25. Fit statistics for the model without items 16 and 17 are also shown in Table 1.

The chi-square value decreased significantly to 1,269 in the revised *MCA* model from 1,726 in the

original *MCA* model. The revised *MCA* model also had a lower RMSEA value of .05, and higher GFI

and CFI values of .91 and .92. Alpha reliability internal consistency estimates for the four scales

ranged from .77 to .88. These values meet those values recommended in the literature.

<center>Discussion</center>

In this study we evaluated *MCA* for use with students in Saturday enrichment programs. We

found the same factors existed for this population as for the instrument normative sample. However,

by eliminating two items from the Challenge scale, we obtained higher fit indices while maintaining

similar internal consistency estimates. Based on these results we propose that *MCA* is a useful tool for

evaluating or studying student participants' perceptions of their Saturday enrichment programs. The

revised *MCA* could be one instrument used in order to create a complete picture of a program's

outcomes. Including such an instrument in program evaluation responds to calls from VanTassel-

Baska (2004) to include multiple perspectives on program evaluation. Validating an instrument that

measures students' perceptions of interest, challenge, choice, and enjoyment with a sample of students

in a Saturday enrichment program may help improve program evaluation and make results of the

evaluation more defensible (VanTassel-Baska, 2006). This study provides evidence that results from a revised version of *MCA* can provide valid data regarding students' perceptions of their Saturday enrichment programs. When using an instrument on a new or different population, research concerning whether the instrument works with this population is necessary. These results suggest that the revised version of *MCA* can be used in enrichment program evaluation and provides measures of four motivational dimensions that are essential aspects of programs for high-ability students.

Limitations and Suggestions for Future Research

The sample used in this study was taken from a Saturday enrichment program at a single site, limiting the generalizability of the results. Future studies should include students from multiple programs. Evaluating the *MCA* using a sample of students from different enrichment programs in different states would provide further evidence of its usefulness. Another limitation regarding the sample is the fact that some of the participants took *MCA* multiple times during data collection, although always rating a different class. Additionally, the participants in this sample rated their experiences positively on this instrument, which may indicate a censoring of student perceptions.

References

Alexander, J. M., & Schnick, A. K. (2008). Motivation. In J. A. Plucker & C. M. Callahan (eds.), *Critical issues and practices in gifted education* (pp. 423-447). Waco, TX: Prufrock Press.

Brown, T.A. (2006). Confirmatory Factor Analysis for Applied Research. New York: The Guilford Press.

Callahan, C. M. (2001). Fourth Down and Inches. *Journal of Secondary Gifted Education, 12,* 148-156.

Csikszentmihalyi, M. (1990). Literacy and intrinsic motivation. *Daedalus, 119*, 115-140.

Davis, G.A., & Rimm, S. B. (Eds.). (2004). *Education of the gifted and talented* (5th ed.). New York: Pearson.

Feng, A. X., & VanTassel-Baska, J. (2004). Collecting student impact data in gifted programs: Problems and processes. In J. VanTassel-Baska & A. X. Feng (Eds.) *Designing and utilizing evaluation for gifted program improvement* (pp. 133-153). Waco, TX: Prufrock Press.

Finney, S.J., & DiStefano, C. (2006). Non-Normal and Categral Data in Structural Equation Modeling. In G. R. Hancock, & R. O. Mueller (Eds.), Structural Equation Modeling: A second course (pp. 269-314). Greenwich, CT: Information Age Publishing.

Gable, R. K., & Wolf, M. B. (1993). *Instrument Development in the Affective Domain.* Boston: Kluwer.

Gallagher, J. (2006). How to shoot oneself in the foot with program evaluation. *Roeper Review, 28,* 122-124.

Gentry, M., & Gable, R.K. (2001a). *My class activities: A survey instrument to assess students' perceptions of interest, challenge, choice and enjoyment in their classrooms*. (Instrument). Mansfield Center, CT: Creative Learning Press.

Gentry, M., & Gable, R.K. (2001b). From the students' perspective *My Class Activities:* An instrument for use in research and evaluation. *Journal for the Education of the Gifted, 24,* 322-343.

Gentry, M., Gable, R.K., & Rizza, M.G. (2002). Students' perceptions of classrooms activities: Are there grade level and gender differences? *Journal of Educational Psychology, 94,* 539-544.

Gentry, M., Gable, R.K, & Springer, P. (2000). Gifted and non-gifted middle school students: Are their attitudes toward school different as measured by the new affective instrument, my class activities? *Journal for the Education of the Gifted, 24*, 74-96.

Gentry, M. Maxfield, L.R., & Gable, R.K. (1998). Construct validity evidence for enrichment clusters and regular classrooms: Are they different as students see them? *Educational and Psychological Measurement*, 58, 258-274.

Gentry, M., Rizza, M.G., & Gable, R.K. (2001). Gifted students' perceptions of their class activities: Differences among rural, urban, and suburban student attitudes. *Gifted Child Quarterly, 45*, 115-129.

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6*, 1-55.

Muthén, L. K. & Muthén, B. O. (1998-2007). *Mplus User's Guide. Fifth Edition*. Los Angeles, CA: Muthén and Muthén.

National Association for Gifted Children (2000). *Pre-K-Grade 12 Gifted Program Standards.* Washington, DC: NAGC.

Olszewski-Kubilius, P. (2003). Special summer and Saturday programs for gifted students. In N. Colangelo & G.A. Davis (Eds.), *Handbook of gifted education* (3rd ed., pp. 219-228). Boston: Allyn and Bacon.

Reis, S.M. (2007). No child left bored. *School Administrator, 64* (2).

Renzulli, J. S. (1994). *Schools for talent development: A comprehensive plan for total school improvement.* Mansfield Center, CT: Creative Learning Press.

Robinson, N.M. (2006). NAGC symposium: A report card on the state of research in the field of gifted education. *Gifted Child Quarterly*, 50, 342-345.

Robinson, A., Shore, B. M., & Enersen, D. L. (2007). *Best practices in gifted education*. Waco, TX: Prufrock Press.

Thompson, B. (2004). *Exploratory and confirmatory factor analysis*. Washington, D.C.: American Psychological Association.

Tomlinson, C. A., & Edison, C. C. (2003). *Differentiation in practice: A resource guide for differentiating instruction.* Alexandria, VA: Association for Supervision and Curriculum Development.

VanTassel-Baska, J. (2004). The process in gifted program evaluation. In J. VanTassel-Baska & A. X. Feng (Eds.) *Designing and utilizing evaluation for gifted program improvement* (pp. 23-39). Waco, TX: Prufrock Press.

VanTassel-Baska, J. (2006). NAGC symposium: A report card on the state of research in the field of gifted education. *Gifted Child Quarterly*, 50, 339-341.

VanTassel-Baska, J., & Feng, A. X. (Eds.). (2004). *Designing and utilizing evaluation for gifted*

    program improvement. Waco, TX: Prufrock Press.